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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/802,434 | 03/09/2001 | Tzu-Jen Kuo | PETAP002 | 7224 |

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| EXAMINER |
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CHO, HONG SOL

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| ART UNIT | PAPER NUMBER |
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2662

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 09/802,434 | Applicant(s) KUO ET AL. | |
| | Examiner Hong Cho | Art Unit 2662 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27, 29 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>9-20-2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it includes the title of the invention. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 23-27 and 29 are rejected under 35 U.S.C. 102(e) as being unpatentable over Lyon (U.S. 6,721,273).

Re claims 23 and 29, Lyon discloses a input-output data switch unit that switches data protocol units, cells, through switching core (*a switch unit that switches data through a switch system*, column 1, lines 12-21). Lyon discloses a scheduler (figure 6, element 50) controlling the flow of cells from the input queues into the switching core by transferring cells in a higher priority queue in preference to cells in lower priority queue (*receives requests to transfer data through switch system and selectively permits one or more of the requests*, column 7, lines 39-53)

Lyon discloses a traffic flow controller (*flow control manager*, figure 2, element 100) controlling the flow of cells into the switching core based on input and output port messages (*flow control information*) that controls the number of cells sent to the switching core (*alters the amount of data transferred to the switch unit*, column 8, lines 25-34).

Re claim 24, Lyon discloses a switch system with a plurality of ports (figure 1) where the type of traffic flow control depends on the amount of congestion level in the set of output queues (*flow control information is derived from congestion information that indicated presence or absence of congestion at one or more of the ports*, column 8, lines 25-28).

Re claims 25 and 27, Lyon discloses a switch system with a plurality of input and output ports with buffers (*switch system with at least one receive-side queue and transmit-side queue*, figures 3 and 6) where the type of traffic flow control depends on the amount of congestion level in the set of output queues (*flow control information is dependent upon an amount or rate of congestion at the receive-side queue*, column 2, lines 51-53; column 8, lines 25-28) and controls the number of cells sent to the congested output port (*alters the amount of data transferred to the receive-side queue*, column 8, lines 35-338).

Re claim 26, Lyon discloses a switch system with a congestion counter (*a traffic manager*, figure 16, element 174) for monitoring traffic congestion at the output ports (*monitors said receive-side queue*, column 15, lines 59-61) and for generating flow control messages via traffic flow controller (*producing the flow*

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control information that is supplied to the flow control manager, column 5, lines 40-42).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalkunte et al (U.S. 6118761), hereinafter referred to as Kalkunte, in view of Ni (U.S. 6680910).

Re claims 1, 4, 7, 8, 13, and 15, Kalkunte discloses a network switch with a congestion monitor for detecting congestion in one of the output buffers (*monitoring outgoing traffic at the ports of the switch to identify congestion of traffic, column 4, lines 64-66*) and a rate controller (*scheduler, figure 1, element 32*) for identifying the output rate of the congested network switch port and calculating the traffic rate for each of the remaining network switch ports (*scheduling of traffic to the ports by the scheduler based in part on the traffic conditions, column 6, lines 16-22*). Kalkunte fails to explicitly teach notifying the scheduler of the switch system of the traffic conditions. However, Ni discloses flow control generator receiving congestion information (*notifying the scheduler*

of the switch system of the traffic conditions, column 4, lines 43-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to implement Ni's flow control concept into Kalkunte to notify a rate control of congestion status of the ports.

Re claims 8-12, 14, and 21-22, Kalkunte discloses invoking a rate control function when the number of queued packets at output buffers exceeds the prescribed congestion threshold (*determining whether flow control is desired based on the traffic conditions by comparing traffic conditions to a threshold value*, column 4, lines 64 to column 5, lines 1-4) and calculating new traffic rate (*altering scheduling of traffic to the each port based on the flow control information*, column 6, lines 16-23) for each of the remaining switch ports (*indicating a flow reduction value for the congested port*).

Re claim 2, Kalkunte discloses a congestion monitor monitoring the stored number of bytes in each transmit buffer to check congestion condition (*independently monitor the outgoing traffic queued for each of the ports to identify the traffic conditions at each of the ports*, column 6, lines 40-44).

Re claims 3 and 6, Kalkunte discloses a rate control calculating the assigned bandwidth value for each of the remaining network switch ports (*independently adjust the rate of traffic delivery to each of the ports based on the respective traffic conditions at the ports*, column 6, lines 60-65).

Re claims 5 and 16-20, Kalkunte fails to explicitly teach forming a flow control packet and sending the packet to the scheduler. However, Ni discloses flow control generator forming and transmitting flow control packets (column 4, lines

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47-53). As explained in the rejection of claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement Ni's flow control generator (*flow control manager*, figure 3, element 330) into Kalkunte to send the flow control packet with information on the congestion level of one or more ports of the network switch to a rate controller ports.

Re claim 7, Kalkunte discloses a rate controller controlling data traffic to a congested output buffer until the number of packets queued is lower than the threshold level of the output buffer (*restricting granting o requests to send additional data to the particular port of the switch system to improve the congested condition at the particular port*, column 7, lines 47-54).

Allowable Subject Matter

6. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - US Patent (6636510) to Lee et al. discloses multicast methodology fro backpressure-based switching fabric
 - US Patent (6144635) to Nakagawa discloses ATM exchange system

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- US Patent (6643256) to Shimojo et al. discloses packet switch using priority control based on congestion status
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3088.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hong Cho
Patent Examiner
9-21-2004


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